REMARKS

I. INTRODUCTION

Applicants have added new claims 17-18. Applicants have amended claim 9 in order to provide sufficient antecedent basis for the limitation "said apertures." No other claims have been amended, and no claims have been canceled. Claims 1-18 are presently pending in this application. Reconsideration and reexamination is hereby respectfully requested.

II. CLAIM OBJECTIONS

Claim 9 has been objected to due to insufficient antecedent basis for the limitation "said apertures" in line 2. Applicants have made the appropriate correction as required. Applicants submit that sufficient antecedent basis now exists for "said apertures" because the claim has been amended to state that the "positive and negative terminal [of claim 8] include a region extending along said horizontal axis having a plurality of apertures therethrough." Reconsideration and withdrawal of the objection is hereby respectfully requested.

III. CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1, 2, 8, and 10-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Velasquez et al. (U.S. 5, 746, 781) in view of Chaloner-Gill (U.S. 5,445,856). Applicants respectfully traverse these rejections.

Claim 1 recites, "A battery unit, comprising: a plurality of bicells wherein each bicell contains anodic exposed grids at a first end of said bicell and cathodic exposed grids at a second end of each bicell, said second end opposing said first end relative to a horizontal axis; a positive terminal wherein said positive terminal is configured to be in connection with said cathodic exposed grids; a negative terminal wherein said negative terminal is configured to be in connection with said anodic exposed grids; and a packaging envelope configured to enclose said bicells, said packaging envelope comprising a single sheet of laminated, aluminized flexible material." (emphasis added).

As shown in Figure 1 of Velasquez et al., the anodic and the cathodic grids are on opposing sides relative to a vertical axis, rather than on opposing sides relative to a horizontal axis as positively claimed in claim 1. Furthermore, in claim 1, the positive and negative terminal are also on opposing sides of the same horizontal axis (as a result of the terminals being configured to be in connection with said cathodic exposed grids and said anodic exposed grids respectively, as positively recited in claim 1). On the other hand, as shown in

Figure 1, the terminals of Velasquez et al. appear on the same side of the horizontal axis referenced in claim 1.

As described in the Specification, positive and negative terminals in conventional lithium polymer soft pack batteries are arranged adjacent to each other and therefore, exit from the same side of the package, making it difficult to electrically connect the packages in a compact configuration. Specification, p.1, ll. 17-24. As further described, by arranging terminals on opposing sides of the battery unit, the battery unit may be rotated relative to an adjacent unit to allow for compact configuration of battery units. Specification, p. 2, ll. 10-22. Claim 1 recites a positive terminal at a first end of the battery unit and a negative terminal at a second end, located on an opposing side of the battery unit relative to a horizontal axis. Velasquez et al. does not teach or suggest all of the limitations of claim 1 and therefore, claim 1 is not obvious over Velasquez et al. in view of Chaloner-Gill.

Additionally, as previously asserted in a Response, claim 1 recites that the positive and negative terminals are configured to be in connection with the cathodic exposed grids and anodic exposed grids respectively, and therefore, are not integral to the exposed grids of the bicells. The Office Action states that in Velasquez et al., "[E]ach grid is also connected to a current collector tab (terminal) which extends from the edge of the current collector. (col. 15, lines 1-10)" Office Action, p. 4. The Office indicates that the current collector tab is identical to the terminal in claim 1. However, Velasquez et al. elaborate on the current collector tab within the Detailed Description of the Preferred Embodiments of the Invention, and according to Velasquez et al.:

> Each current collector tab is integral to the current collector. By integral is meant that the body of the current collector and tab form a unit, that is, they are not separate members that are attached (e.g., welded) together.
>
> Velasquez et al. (U.S. 5,746,781) (col. 12, ll. 8-12). (emphasis added).

Velasquez et al. disclose a current collector that is integral to the tab, not a separate terminal, either positive or negative, that is not integral to the exposed grids of the cathode or anode respectively, as positively claimed.

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally,

> the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Applicants submit that Velasquez et al. does not teach or suggest all of the limitations of amended claim 1. Velasquez et al. does not teach that the positive and negative terminals are not integral with the grids of the cathode and anode current collectors respectively, nor does Velasquez et al. suggest this limitation. Furthermore, Chaloner-Gill does not teach that the positive and negative terminals are not integral with the grids of the cathode and anode current collectors respectively, nor does Chaloner-Gill suggest this limitation. For these reasons, amended claim 1 is not made obvious by Velasquez et al in view of Chaloner-Gill. Applicants respectfully request reconsideration and withdrawal of the rejection.

Claims 2 depends from claim 1 directly and therefore contains all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully request reconsideration and withdrawal of the rejection. Furthermore, claim 2 recites: "The battery unit of claim 1 wherein one of said terminals further comprises a tang." (emphasis added). Therefore, in claim 2 the tang is part of the terminal. The Office Action states that in Velasquez et al, "[T]he anode tabs (terminals) are preferably welded together and connect to a lead (tang), and the cathode tabs (terminals) are similarly welded and connect to a lead (tang). See column 4, lines 46-60." Office Action, p. 4. In claim 2, the tang is part of the terminal, whereas in Velasquez et al., the tabs are welded and connected to a lead (referred to as a tang in the Office Action), a separate element, as outlined in the Office Action. Furthermore, in claim 2, only one of the terminals comprises a tang (as emphasized), whereas in Velasquez et al, both the anode tabs and cathode tabs are connected to a lead (referred to as tang in the Office Action). Applicants submit that Velasquez et al. does not teach or suggest all of the limitations of amended claim 2. MPEP § 2143. Velasquez et al. does not teach that the tang is part of the terminal and that only one of the terminals comprises a tang, nor does Velasquez et al. suggest these limitations. Furthermore, Chaloner-Gill does not teach that the tang is part of the terminal and that only one of the terminals comprises a tang, nor does Chaloner-Gill suggest these limitations. For these reasons, amended claim 2 is not made obvious by Velasquez et al in view of Chaloner-Gill. Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim 8 also stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Velasquez et al. in view of Chaloner-Gill. Claim 8 depends from claim 1 directly and therefore contains all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim 10 recites: "A battery module, comprising: a plurality of battery units configured such that said plurality may be stacked; positive terminals each located at a first end of the battery unit, a first number of positive terminals being equal to the number of said plurality of battery units; negative terminals each located at a second end of the battery unit, said second end opposing said first end relative to a horizontal axis, a second number of negative terminals equal to the number of said plurality of battery units; and a packaging envelope for each one of said battery units, said packaging envelope comprising a single sheet of laminated, aluminized flexible material." (emphasis added).

Therefore, amended claim 10 recites that the positive and negative terminals are located at opposing ends of the battery unit relative to a horizontal axis. Applicants submit that Velasquez et al. does not teach or suggest all of the limitations of claim 10. Velasquez et al. does not teach that the positive and negative terminals are at opposing ends of a battery unit relative to a horizontal axis, nor does Velasquez et al. suggest this limitation. Furthermore, Chaloner-Gill does not teach that the positive and negative terminals are at opposing ends of the battery unit relative to a horizontal axis, nor does Chaloner-Gill suggest this limitation.. For these reasons, amended claim 10 is not made obvious by Velasquez et al in view of Chaloner-Gill. Applicants respectfully request reconsideration and withdrawal of the rejection.

Claims 11-13 depend from claim 10, either directly or indirectly, and therefore contain all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 10, Applicants respectfully request reconsideration and withdrawal of the rejection. Furthermore, claim 11 contains limitations not taught or suggested by Velasquez et al, and therefore Velasquez et al. in view of Chaloner-Gill cannot render claim 11 obvious. Claim 11 recites: "The battery module of claim 10, wherein a first battery unit is configured in an orientation and a second battery unit is configured in an orientation such that said positive terminal of said second battery unit is electrically connected to said negative

terminal of said first battery unit, said second battery unit rotated around a horizontal axis 180 degrees such that first and second battery units create a stacked configuration." (emphasis added). The configuration of the battery unit in Velasquez et al. would not allow the positive terminal of the second battery unit to electrically connect with the negative terminal of the first battery unit if the second battery unit was rotated around a horizontal axis 180 degrees. If such rotation of the second battery unit occurred, then the positive and negative terminals of the second battery unit would be on an opposing side relative to a horizontal axis to the positive and negative terminals of the first battery unit and could not be electrically connected.

Applicants respectfully traverse any rejection of claim 14. Claim 14 recites, "A method of electrically connecting a battery module, comprising: configuring a first battery unit and a second battery unit; locating positive terminals at a first end of said first and second battery units, a first number of positive terminals being equal to the number of said battery units; locating negative terminals at a second end of said first and second battery units, said second end opposing said first end relative to a horizontal axis, a second number of negative terminals equal to the number of said battery units; enclosing said battery units in individual packaging, said packaging comprising a single sheet of laminated, aluminized flexible material; and orienting said first battery unit and said second battery unit such that said positive terminal of said second battery unit is electrically connected to said negative terminal of said first battery unit, said second battery unit rotated around a horizontal axis 180 degrees such that first and second battery units create a stacked configuration." (emphasis added).

The Office states that Velasquez et al. provides for two bicells connected in a parallel arrangement and also provides for the stacking of bicells. Office Action, p. 5. Claim 14 overcomes an obviousness rejection based on the prior art of Velasquez et al. and Chaloner-Gill because amended claim 14 includes the limitations, as described above, that the positive and negative terminals are located on opposing sides of the battery unit relative to a horizontal axis and secondly that the positive and negative terminals of adjacent battery units may be electrically connected after rotated around a horizontal axis 180 degrees. Therefore, Applicants submit that neither Velasquez et al. nor Chaloner-Gill teach or suggest all of the limitations of amended claim 14. MPEP § 2143. For this reason, amended claim 14 is not

made obvious by Velasquez et al in view of Chaloner-Gill. Applicants respectfully request reconsideration and withdrawai of the rejection.

Claims 15-16 depend from claim 14, either directly or indirectly, and therefore contain all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 14, Applicants respectfully request reconsideration and withdrawal of the rejection.

For all these reasons, claims 1, 2, 8, 10, and 11-16 are not unpatentable over Velasquez et al. in view of Chaloner-Gill and Applicants respectfully request reconsideration and withdrawal of the rejections.

IV. CLAIM REJECTIONS UNDER 35 U.S.C.§ 103(a)

Claims 3-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Velasquez et al. in view of Chaloner-Gill and further in view of Mas et al. (U.S. 6,348,283). Claims 3-4 depend from claim 1 directly and therefore contain all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully request reconsideration and withdrawal of the rejection.

V. CLAIM REJECTIONS UNDER 35 U.S.C § 103(a)

Claims 5-7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Velasquez et al. in view of Chaloner-Gill and further in view of Hanafusa et al. (U.S. 2001/0051298 A1). Claims 5-7 and 9 depend from claim 1, either directly or indirectly, and therefore contain all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully request reconsideration and withdrawal of the rejections.

Furthermore, with respect to claim 9, the Office states that while Velasquez et al. is silent to the terminal comprising a region with a plurality of apertures with an adhesive layer extending through the plurality of apertures, Hanafusa et al. shows a plurality of apertures provided so that an adhesive resin can seal the outer layers of the foil casing. Office Action p.8. As asserted in a previous Response, Applicants submit that Velasquez et al. in combination with Hanafusa et al. do not teach or suggest all of the claim limitations of amended claim 9.

Amended claim 9 recites, "The battery unit of claim 8 wherein said positive terminal and said negative terminal include an electrically conductive body portion having a lengthwise axis associated therewith, including a region extending along said axis having a plurality of apertures therethrough, and said hot melt adhesive adheres to itself through said apertures of said positive and negative terminals" (emphasis added). The apertures of Hanafusa et al. allow the inner resin of the laminated film to "pour[] through the numerous holes in the apertures [and] . . . when the resin in the apertures 59, 60 acts as a wedge, the laminated film and the electrode lead lines 2,3 are strongly adhered to each other." The apertures of Hanafusa et al. do not allow the hot melt adhesive layer of the packaging envelope to "adhere[] to itself through said apertures" as positively claimed, creating an improved seal when the envelope is folded over the battery unit and adhesive flows through the plurality of apertures of the terminals on opposing sides of the terminals. The plurality of apertures in Hanafusa et al. merely allows the resin layer of the laminated film to flow through the apertures and adhere to the film and electrode lead lines in order to create a wedge between the laminated film and the electrode lead lines, not seal to itself as positively claimed. Claim 9 is not rendered obvious by combining Velasquez et al. with Hanafusa et al. since the combination does not teach the limitation that the hot melt adhesive adhere to itself, nor does the combination suggest such a limitation. Applicants respectfully request reconsideration and withdrawal of the rejection.

VI. NEW CLAIMS

Applicant has included new claim 17 that incorporates claim 1 and recites additional language not found in claim 1. Claim 17 recites in part, "A battery unit, comprising: . . . a positive terminal . . . at a first side of said battery unit such that said positive terminal extends from said battery unit in a first direction; a negative terminal . . . at a second opposing side of said battery unit such that said negative terminal extends from said battery unit in a second direction opposite to said first direction . . ." This new claim 17 emphasizes that the terminals of the inventive configuration extend in opposite directions as positively claimed, while the terminals of Velasquez et al. extend in the same direction even though they appear on opposite sides relative to a vertical axis. To further elaborate, the configuration of Velasquez et al. includes cathodic and anodic exposed grids on opposite sides relative to a vertical axis. The positive and negative terminals therefore appear on

opposite sides relative to a vertical axis because the terminals are configured to be in connection with these grids. However, in Velasquez et al., the positive and negative terminals extend in the same direction so that both of the terminals exit a single side of a battery unit. Velasquez et al. do not disclose a battery unit wherein the positive and negative terminals extend from the battery unit in opposing directions, as positively recited in claim 17. The advantage of the inventive configuration is that the terminals exit opposing sides of a battery unit, in opposing directions, enabling a more compact configuration when several terminals are electrically connected, as described in the Specification.

The terminals of the inventive configuration differ from Velasquez et al. because each terminal is attached to an opposite side of the battery unit and exits in an opposing direction. Because the terminals of Velasquez et al. extend only along a portion of an edge of the battery unit, the terminals of Velasquez et al. may be considered to be on opposite outboard edges of a battery unit. However, even though the terminals may be on opposite outboard edges, they still exit the terminal on a same side (although on different edges) in a single direction, and therefore are distinguished from the inventive configuration of claim 17 in which the terminals exit on opposing sides of the battery unit in opposing directions.

Velasquez et al. disclose a battery unit that a top view, as shown in Figure 2 of Velasquez et al., shows the anodic and cathodic terminals exiting the same side of the battery unit. As best viewed in Figure 3 of the pending application, a top view of the inventive configuration will show the anodic and cathodic terminals of the inventive configuration exiting opposing sides of the battery unit in opposing directions. As described in the Specification, when terminals are arranged to exit on the same side of a battery unit and are adjacent to each other, it may be difficult to electrically connect the packages in a compact c configuration. The inventive battery unit arranges the cathodic and anodic exposed grids so as to be opposite of each other relative to a horizontal (not vertical) axis, thereby enabling the terminals to be connected to said grids on opposing sides of a battery unit such that the terminals extend away from the battery unit in opposing directions.

Applicant has included new claim 18 that incorporates claim 10 and recites additional language not found in claim 10. Claim 18 recites in part, "A battery module, comprising: a plurality of battery units . . .; positive terminals each located at a first end of the battery unit extending in a first direction from said battery unit, . . . negative terminals each located at a second end of the battery unit, said second end opposing said first end relative to a horizontal

axis, extending from said battery unit in a second direction opposite to said first direction . . ." As described previously with regard to newly added claim 17 for a battery unit, Velasquez et al. does not disclose a battery unit with the positive and negative terminal of the battery unit extending from the battery unit in opposite directions. Accordingly, Velasquez et al. does not disclose a battery module containing battery units with the positive and negative terminal of each battery unit extending from each battery unit in opposite directions as positively recited in claim 18.

VII. CONCLUSION

For at least the above-cited reasons, all claims pending in the present application are now believed to be allowable. Early receipt of a Notice of Allowance is hereby respectfully requested.

Respectfully submitted,

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